P.9 Control of a Circulating Fluidized Bed

Hoowang Shim (WVU), W. Neal Sams (EG&G), Praveen Koduro(WVUIT), Amol Patankar (WVUIT), Gretchen Rickards (WVU), Parviz Famouri (WVU), Richard Turton (WVU), Assad Davari (WVUIT), Larry Lawson (DOE), Edward J. Boyle (DOE)

Abstract

Two methods for optimally controlling the operation of a circulating fluidized bed are being investigated, neural network control and Kalman filter control. The neural network controls the solids circulation rate by adjusting the flow of move air in the non-mechanical valve. Presented is the method of training the neural network from data generated by the circulating fluidized bed (CFB), the results of a sensitivity study indicating that adjusting the move air can control solids flow, and the results of controlling solids circulation rate. The Kalman filter approach uses a dynamic model and a measurement model of the standpipe section of the CFB. Presented are results showing that a Kalman filter can successfully find the standpipe bed height.